



ECD232ENET USERS MANUAL

ISOLATED DEVICE SERVER

Introduction

Serial communications (RS-232, RS-422 and RS-485) are cost-effective, reliable and time-tested protocols for data transfer. They are used in millions of manufacturing, banking, industrial and security applications that require serial-based peripheral device such as: bar code scanners, printers, CNC machines, security cameras, process equipment and card readers. Effectively and efficiently using data from a stand-alone serial device can be difficult however, as access is available only to the computer to which it is physically connected via local COM port. Device server offers a better solution by IP-enabling the serial device, connecting it to an Ethernet LAN or WAN. It can then be accessed from any computer on the network, just as if it were attached to a local serial COM port at each PC authorized to access it.

The ECD232Enet Isolated device server brings network connectivity safely and easily. It is designed to connect industrial devices with serial interface to an Ethernet network using the TCP/IP protocol family (TCP for transparent stream and UDP for datagram applications).

Product Over-view

1. Serial Interface

ECD232Enet has DB9 male (DTE interface) and screw terminal block at the top (Txd, Rxd and SGnd).

2. Network Interface

ECD232Enet support 10/100 Mbit Ethernet through its RJ45 (10/100BaseT) connector

3. Isolation

Over 2500v optical isolation between RS-232 port (DB9) and network port (RJ45) (5kv test isolation) and 2500v galvanic isolation between network port and the power supply (3kv test isolation). The full isolation 3-port model also has isolation between RS-232 port and power supply.

4. Hardware and IP address

ECD232Enet provides six bytes MAC address and the default IP setting to 0.0.0.0

5. Surge Protection

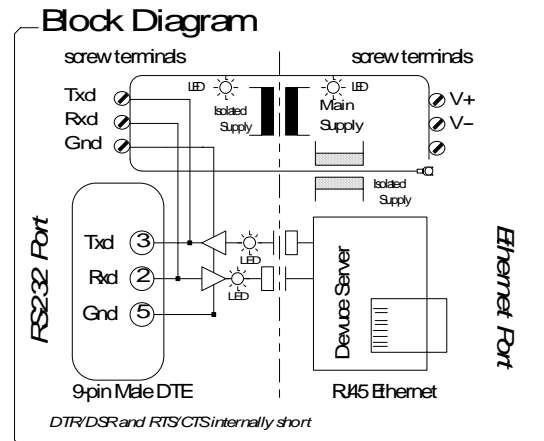
600watt transient suppresser diodes are installed on the RS-232 port (600w for 1ms with less than 1psec response to over-voltage)

6. Network Protocols

ECD232Enet uses TCP/IP protocols for network communication. The supported standards are:

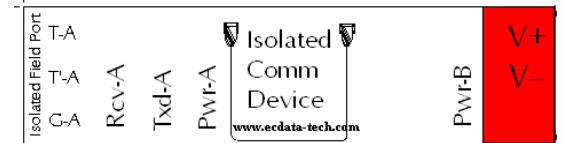
TCP, UDP, ARP, ICMP, DHCP, SNMP, HTTP, SMTP and SSL/TLS

7. Block Diagram



8. User Indication

The ECD232Enet has two portions of LED indicator. At the top, green LEDs (Pwr-B and Pwr-A) light showing main power and isolated power for RS-485 is available. Yellow LEDs (Rcv-A and Txd-A) light when the data is received and transmitted from the serial interface.



At the network interface side, there are two LED indicators, green LED and yellow LED. The function of them is as following:

Green LED

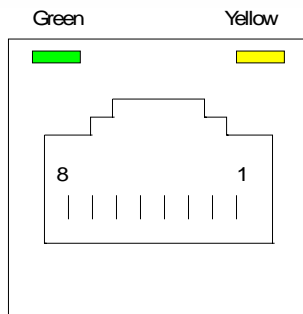
On 10/100Base-T network link present

Off 10/100Base-T network link not present

Yellow LED

On Network traffic detected

Off No network traffic detected.



Configuration

1. Network configuration

The ECD232Enet can be configured over the network, the configuration is stored in nonvolatile memory and is retained without power. The configuration can be changed anytime and the unit performs a reset after the configuration has been changed and stored.

To configure the unit, connection to the unit with Web Browser must be established.

Assign a New IP Address

if the IP address of the unit is undefined, the following steps highlight how to assign a temporary IP address over the network.

Set a static ARP with the desired IP address using the hardware address (MAC address) of the ECD232Enet which is printed on the product. Following shows the use of ARP in Win95/98/2000/me/xp/NT, (from the DOS prompt) and UNIX environments when the MAC address of the ECD232Enet is 00-40-9d-23-62-03.

Arp -s 192.168.168.2.33 00-40-9d-23-62-03

The command for most Unix systems is:

Arp -s 192.168.2.33 00:40:9d:23:62:03

Note: In order for the ARP command to work in windows, the ARP table on the PC must have at least one IP address defined other than its own. If there is no other entry beside the local machine, **ping** another IP machine on your network to build the ARP table. Once there is at least one entry in the ARP table, use the above command to ARP an IP address to the ECD232Enet

Ping the ECD232Enet using the IP address which assigned to it just now, the unit will change its IP address to the one designated in the ARP command.

Point a web browser to the unit by entering the IP address in the web browser's URL Address field.

[Http://192.168.2.33](http://192.168.2.33)

Set the network parameters for the ECD232Enet and save them to the nonvolatile memory.

Note: The temporary IP address by ARP is reverted after every power reset of the ECD232Enet. Be sure to store the parameters to make the changes permanent.

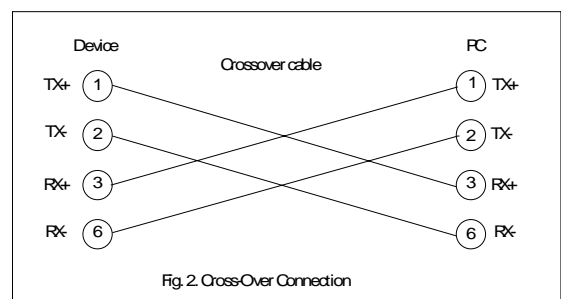
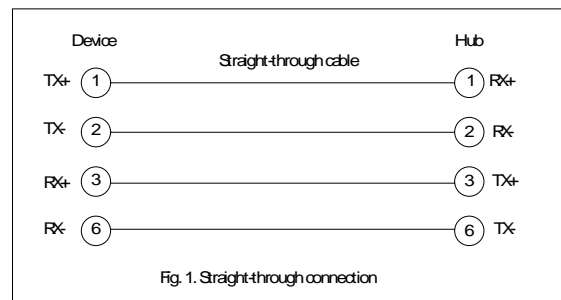
2. Serial Configuration

Follow the network configuration, select the serial interface configuration, and set the parameters for the serial comm.

Installation

1. Network Connection

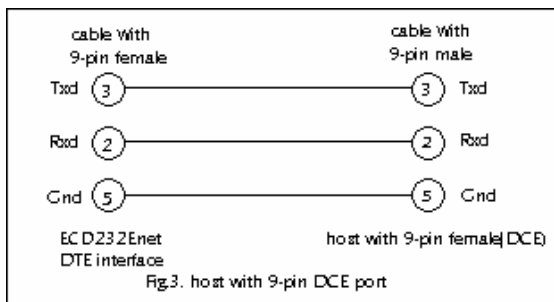
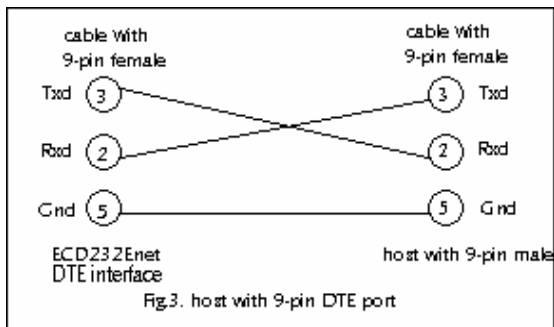
There are two types of UTP Ethernet cable connection in the ECD232Enet to Ethernet connection. One is Straight and the other is Crossover. Following figures show two types of connections:



Note: A pair of twisted wires must be used to connect a set of transmitter pins to their corresponding receiver pins. DO NOT use a wire from one pair and another wire from a different pair.

2 Serial Connections

The ECD232Enet has one 9-pin male (DTE) connector like the standard 9-pin "AT" port of a computer or DTE port. Follow the appropriate wiring diagram below:

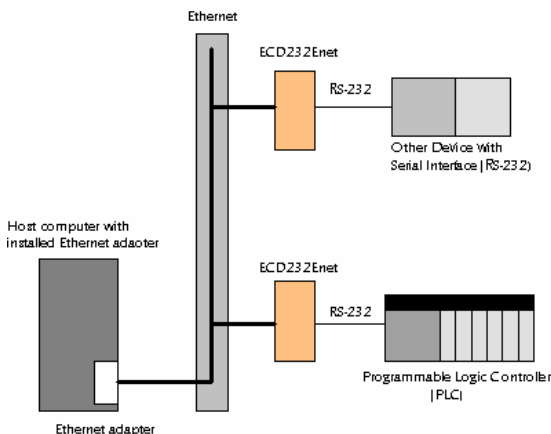


Note: Standard RS-232 interface devices cannot be damaged by reverse wiring or short-circuits to ground. But be warned that some low-cost devices use transistors to approximate a RS-232 signal and this built-in protection may not be there.

3. Physical installation

The ECD232Enet unit mounts on a standard DIN rail as listed in the specification.

Application Example



Technical Specification

1. RS-232 port description

- 1.1. RS-232; 3-wire RS-232; Signal: Tx, Rx, SGnd; Working voltage range +/-9vdc; Max voltage range +/-15vdc; Max surge +/-25vdc.
- 1.2. Duplex; Operation can be either half or full-duplex; No configuration required
- 1.3. Speed; Up to 230,400bps; Configuration required.
- 1.4. Character Setting; Operates with any combination of parity, data, stop, and start bits; Configuration required.
- 1.5. Connector; DB9 male; DTE interface.

2. Network interface description

- 2.1. Integrated 802.3 compliant 10/100 Mbit network interface
- 2.2. Robust on-board TCP/IP stack with comprehensive protocol support: TCP, UDP, DHCP, SNMP, SSL3.0/TLS1.0, HTTP, SMTP, ICMP, IGMP, ARP.
- 2.3. Easy configuration through user-friendly and fully customizable web interface.
- 2.4. Embedded web server with support for custom java applets (applet space:512KB).
- 2.5. Universal IP address assignment for seamless network integration.
- 2.6. Secure web-based configuration using password protection and HTTPS encryption
- 2.7. FCC Part 15, Class B/EN 55011, Class B compliant
- 2.8. Connector: RJ45

3. Isolation (Per ISO/IEC 9549)

- 3.1. Serial port to network port; 2.5Kv(optical, 5Kv test).
- 3.2. Serial port to Supply; 2.5Kv (galvanic, 3Kv test)
- 3.3. Network port to Supply; model "-2p" none; model "-3p" 2.5Kv.
- 3.4. Encapsulant; 14,000v per mm.

4. Power Supply

- 4.1. Model ECD232Enet-5v-2p; 5vdc +/-5% 350mA
- 4.2. Model ECD232Enet-5v-3p; 5vdc +/-5% 360mA
- 4.3. Model ECD232Enet-dv-2p; 9 to 36vdc; 1.7w
- 4.4. Model ECD232Enet-dv-3p; 9 to 36vdc; 1.8w



5. Environmental

- 5.1. Ambient Operating Temperature: 0C to +60C
- 5.2. Ambient Storage Temperature: -40C to +100C
- 5.3. Relative Humidity: 10 to 90%, non condensing
- 5.4. Casing; fungus and termite resistant, self-extinguishing per UL94 V2

6. Mechanical Dimensions

- 6.1. Height: Width: Depth (See drawing).

- 6.2. Weight: 130g.

- 6.3. Mounting Rail:

DIN EN 50022 (35mm sym)

DIN EN 50025 (32mm asym)

Note: removal from DIN EN 50025 rail is difficult.

